

## Proposal for a Continuous Cover Forestry (CCF) Fund

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**Adapted from:** David Hall & Sam Lindsay (2020). *Scaling Climate Finance: Forest Finance*. Mōhio Research: Auckland.<sup>1</sup>

### Summary

1. The Continuous Cover Forestry (CCF) Fund is a proposed impact equity instrument which acquires forestry assets for management under CCF principles, so that harvesting is limited to selective felling or small coupe harvests. Consequently, the CCF Fund is designed to precipitate a shift toward more sustainable forestry management, mobilise capital markets for an impact-oriented investment asset, and create an 'exit route' for forestry companies that cannot continue to clear-fell harvest due to greater regulatory stringency or loss of social licence.
2. CCF is a promising land-use option as part of a nature-based recovery for Te Tai Rāwhiti. CCF will *not* be appropriate for *all* sites, but, where CCF is technically and economically feasible, it offers the opportunity to continue forestry production while significantly reducing negative impacts on local environments and communities.

### Context

3. Continuous cover forestry (CCF) refers to forest management systems, such as selective harvesting or small coupe felling, that maintain a continuous canopy cover throughout the practice of timber extraction.
4. Promotion of CCF systems is identified as Action 7.2 in the Forestry and Wood Processing Industry Transformation Plan (ITP). Work is currently underway to address critical knowledge gaps and establish forestry trials.
5. CCF is relatively rare in New Zealand. Most plantation forestry is managed by clear-fell systems. However, there are examples of CCF in New Zealand which can be learnt from (see **Appendix**). Also CCF systems are more common in other parts of the world, including Europe through the Pro Silva movement.
6. Because CCF systems retain an ongoing presence of canopy cover, root structure and forest habitat, some of the environmental harms of clear-fell harvest systems can be avoided or minimised. CCF can result in reduced incidence of sedimentation and erosion, reduced habitat disruption for native flora and fauna, and reduced mobilisation of forestry debris. CCF may also produce greater ecological resilience due to its uneven-aged forest structure and frequent use of diverse tree species, which reduces the risk of significant forest loss from fire, disease or windthrow.
7. These attributes make CCF a potential substitute for conventional clear-fell forestry at *some* sites in Te Tai Rāwhiti. It must be stressed that the appropriateness of CCF can

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<sup>1</sup> This report was an output of the Climate Innovation Lab, a co-design process supported by ANZ, involving representatives from the investment, forestry and research sectors.

only be determined on a site-by-site basis, because at some sites the transition from clear-fell to CCF may be impractical, so the environmentally optimal land use might be unharvested native forest. However, where CCF is viable, these systems may reduce the environmental impacts of plantation forestry while preserving ongoing opportunities for timber harvesting.

8. CCF faces multiple barriers to implementation at scale. These include:
  - an unwillingness among forestry-sector incumbents to accept a reduced rate of return by transitioning forest assets from clear-fell to CCF;
  - a lack of technical expertise in selective harvesting;
  - limited access to specialised harvesting equipment;
  - cultural and institutional inertia (or path-dependencies) which lock-in clear-fell systems, such as optimisation of wood processing for standardised *Pinus radiata* logs; and
  - actual or perceived risks of an unfamiliar silvicultural system by land- and forest-owners.
9. However, once a forest is being successfully harvested under a CCF regime, it is an attractive asset from an investor perspective.<sup>2</sup> Its advantages include:
  - CCF delivers a stable cash yield, like ‘clipping the coupon’ on a bond, with less exposure to timber price fluctuations than clear-fell forestry.
  - CCF produces larger, more valuable trees and a higher proportion of saw logs, which achieve a higher price per m<sup>3</sup>.
  - CCF grows and maintains the capital value of the forest in perpetuity.
  - CCF can generate higher carbon yields under stock change accounting in the Permanent Forest Category than plantation forestry otherwise can under averaging accounting.
  - Transformation to CCF brings forward cash flows because of heavier thinning in early years.
  - CCF minimises the costs of replanting by relying on natural regeneration to establish replacement trees.
  - Ongoing management and harvesting creates more stable job opportunities.
  - Additional costs from management and harvesting are not prohibitive once the environmental and social benefits of CCF are taken into account, especially if ecosystem services like biodiversity improvement and avoided erosion are monetised.

## Proposal

10. A Continuous Cover Forestry (CCF) Fund is designed to leverage the positive investment attributes of CCF in order to overcome the transition barriers. It uses sustainable finance to induce a transition in forestry management approaches in the East Coast.
11. The CCF Fund’s theory of change is to focus on shareholders as a critical lever for change in East Coast forestry. By creating an investment opportunity that strikes a better

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<sup>2</sup> McMahon, P. and Sarshar, D. and Purser, P. (2016). *Investing in Continuous Cover Forestry*. Report prepared by SLM Partners.

balance between social, environmental and financial returns, the CCF Fund crowds in impact-oriented shareholders whose risk and return expectations are well-aligned with CCF. Consequently, it also crowds out shareholders who are singularly focused on financial returns and indifferent to the social and environmental harms of clear-fell forestry on highly erodible land.

12. The CCF Fund uses blended finance – i.e. a combination of structured public and private finance – to create a tiered funding pool that purchases forestry assets with the intention of transitioning into CCF systems. Government capitalises the junior tranche, which provides investors the confidence to capitalise senior tranches.
13. The primary focus of the CCF Fund's investment strategy is harvested forest land which is due for restocking, and recently planted sites (e.g. planted within last ten years). In both cases, the transition to CCF is relatively straightforward and a positive return on investment can be achieved through good forest management.
  - A secondary focus for the CCF Fund is mature even-aged stands which were intended for clear-fell harvest, but cannot be harvested due to environmental, social and regulatory factors. Conversion of mature stands to CCF is technically challenging and therefore likely to incur higher costs and risks. Consequently, such assets will likely need to be publicly funded as a harm avoidance strategy, rather than solely on the basis of expected financial returns. Nevertheless, a vertically integrated CCF Fund is likely to accumulate the skills and equipment needed for such transitions, so the provision of public goods should be included in its strategy.
14. Existing economic analysis of CCF demonstration sites in New Zealand give reasonable confidence of positive returns on investment from CCF assets under existing settings (see **Appendix** below). All else being equal, financial returns are likely to be lower than clear-fell systems, but this is partly because the latter do not pay the full costs of production. Many of the environmental and social costs from clear-fell harvesting are externalised, which include the costs of erosion and sedimentation associated with earthworks and harvesting, the production of forestry debris and its impacts when mobilised by flood events, and the total loss of habitat for native flora and fauna when harvesting occurs. If clear-fell forests were compelled to pay for those costs, or if CCF forests were remunerated for their relative benefits, then the economics would shift in favour of CCF.
15. If Cyclone Gabrielle results in new regulations or penalties, or greater stringency and enforcement of existing regulations and penalties, then these externalities will be (at least partially) internalised. Consequently, many clear-fell forest assets are likely to become uneconomic and/or unharvestable, effectively becoming stranded assets. If forestry investments are forfeited and abandoned, this creates future challenges and risks for land management, because these abandoned forests are likely to be maladaptive and hazardous. In this context, the CCF Fund offers an 'exit route' for such forests, which might be sold at a discount to the CCF Fund for transition into an appropriate management system. This could help to defuse industry resistance to

stronger regulation of clear-fell forestry on erodible land, because forestry companies at least have an option to minimise losses.<sup>3</sup>

16. Government support for the CCF Fund is likely to be essential. The CCF Fund is designed to alleviate total liabilities to government by crowding in private finance, deploying public finance as equity rather than grants, and using productive forestry systems to address multiple policy goals. However, because the current forestry sector is dominated by clear-fell systems, a transition to alternative systems will require a pro-active market-shaping approach by government. This support need not be indefinite, because CCF systems can be profitable and self-sustaining over the long run, but support is needed to achieve breakthrough for innovative forestry systems.
17. The proposed CCF Fund uses blended and structured finance to crowd in impact-oriented investment. Government investment is used to capitalise the CCF Fund's junior tranche, which absorbs a higher level of risk in order to facilitate a transition in forestry management that supports multiple policy objectives including climate adaptation, biodiversity, water quality, and long-lasting carbon storage. The senior tranche is capitalised by private capital markets, specifically impact-oriented institutional investors who are actively searching for opportunities to combine positive financial returns with a strong alignment to net-zero, climate-resilient, nature positive outcomes. With this equity-based structure, private capital markets can do the heavy lifting of capitalisation, while government can achieve multiple policy objectives by taking an equity stake that (unlike grant funding) creates revenue opportunities over the long run.
18. Another critical enabler of CCF systems is a biodiversity payment which enables a shift from *Pinus radiata* to high-value native timber species, thereby increasing the financial returns from timber as well as the co-benefits for biodiversity. This payment could be operationalised by various instruments, such as biodiversity credits, payments-for-ecosystem-services or ecological fiscal transfers. The rationale is as follows:
  - Although CCF of *Pinus radiata* is economically feasible (see **Appendix**), the economics are improved if continuous-cover forests transition into high-quality, high-value timber species, including native timber species.
  - Native timber species have slower growth rates in the early years, which reduces the scale of potential revenue from carbon markets such as the Emissions Trading Scheme, and also delays the opportunities for harvesting.
  - Consequently, native forests face a liquidity challenge in the early phases, with limited opportunities for cashflow to pay dividends, service debt, or fund forest management. Although growth rates might be increased through improved forest management and genetics, the slow initial growth rates of native tree species is a biophysical constraint with implications for economic viability.
  - A well-designed biodiversity payment, however, would create liquid cashflow when it is needed most. The early phase of forest establishment, when growth

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<sup>3</sup> Sally Gepp, Madeleine Wright & David Hall (2019). *A Review of the Resource Management (National Environmental Standards for Plantation Forestry Regulations 2017)*. Report prepared for Environmental Defence Society (EDS) and Forest & Bird. Retrieved from: [http://www.eds.org.nz/assets/pdf/Review%20of%20NES -PF%20FINAL.pdf](http://www.eds.org.nz/assets/pdf/Review%20of%20NES-PF%20FINAL.pdf)

rates of native trees are slowest, is also the phase when the biodiversity improvements are greatest, when native tree species succeed over exotic grasses, shrubs and trees. A well-designed biodiversity payment could reward the rate of change in species composition toward indigenous species dominance, which means that the biodiversity payment declines while the carbon revenue increases. This also means that the funder's liabilities are time-limited, rather than extended into perpetuity.

- In this way, a biodiversity payment can address financial barriers for CCF by creating liquid cashflow to pay dividends, service debt or fund forest management in the early years, before carbon revenues and harvesting opportunities are realisable.
19. In sum, a CCF Fund would make a valuable contribution to a nature-based recovery in Te Tai Rāwhiti, while also building the skills and capabilities to catalyse a nationwide shift to alternative forestry systems. Through a cornerstone investment, the government could mobilise private capital markets to support revenue-generating forestry assets that create regional economic opportunities, while also serving multiple policy objectives in climate adaptation, biodiversity enhancement, protection of freshwater and marine ecosystems, and long-lived carbon storage.

## Appendix

Ian Barton (2008). *Continuous Cover Forestry*. Pukekohe: Tane's Tree Trust.

Christopher Perry, Mark Bloomberg and David Evison (2015). Economic analysis of a target diameter harvesting system in radiata pine. *New Zealand Journal of Forestry*, 60(1): 31–37.

John Wardle (2019). Management of radiata pine using selective harvesting and natural regeneration. *New Zealand Journal of Forestry*, 63(4): 25–28.

Mark Bloomberg, Eric Cairns, Denny Du, Harriet Palmer and Chris Perry (2019). Alternatives to clearfelling for harvesting of radiata pine plantations on erosion-susceptible land. *New Zealand Journal of Forestry*, 64(3): 33–39.

Paul Quinlan (2022). Low-volume selective harvesting of farm tōtara – a practical trial. *New Zealand Journal of Forestry*, 67(2): 30–35.

Sean Weaver (2023). Carbon economics of natural regeneration at scale. *New Zealand Journal of Forestry*, 67(4): 35–47.